U.S. AIR FORCE

Air Force and DoD Biometrics Partnership

Chris Crooks
Booz Allen Hamilton
2003 Biometric Consortium Conference

Overview

- AF Biometrics Stakeholders
- Supporting the DoD Biometrics Mgmt Office (BMO)
- Request for Support
- Task Objectives
- Feasibility Study / Lab Scenarios
- Successes / Challenges
- Summary

Air Force Stakeholders

- Air Staff (AF/XICI)
  - ✓ Policy
- Air Force Communications Agency (AFCA/WFP)
  - ✓ Lead Command Designation by AF/XIC, 21 Aug 02
  - ✓ Coordinating activities with Security Forces FOA and ESC
  - ✓ Establishes AF standards, uses and policies
  - ✓ Focused to operationalize biometrics across the enterprise
- Electronic Systems Center (ESC/DIW)
  - ✓ Provides technical expertise to DoD BMO activities
  - ✓ Performs biometrics quick looks and pilots
  - ✓ Integrates physical or logical access solutions
  - ✓ Provides testing & implementation support
    - Most support to date has involved physical access
    - Conducted biometric distribution feasibility study using AFDS

Our support to DoD BMO

- CAC-BWG tech demonstration team member
- DoD BMO documentation contributor / reviewer
- Participate in BMO Enterprise Working Groups
- Coordinating field test evaluations
  - 141 CF, Region 6 SIPRNET ROSC (Oregon ANG)
    - Fingerprint and Hand Geometry w/PIN
  - 142 ARW (Washington ANG)
    - Fingerprint and Hand Geometry w/PIN
  - 375 SFS
    - Hand Geometry w/PIN
      - 1,900 Users enrolled, 500 Daily Users
  - HQ AFSOC
    - Iris, Fingerprint, and Hand Geometry

AF recognized as a superior contributor to BMO efforts

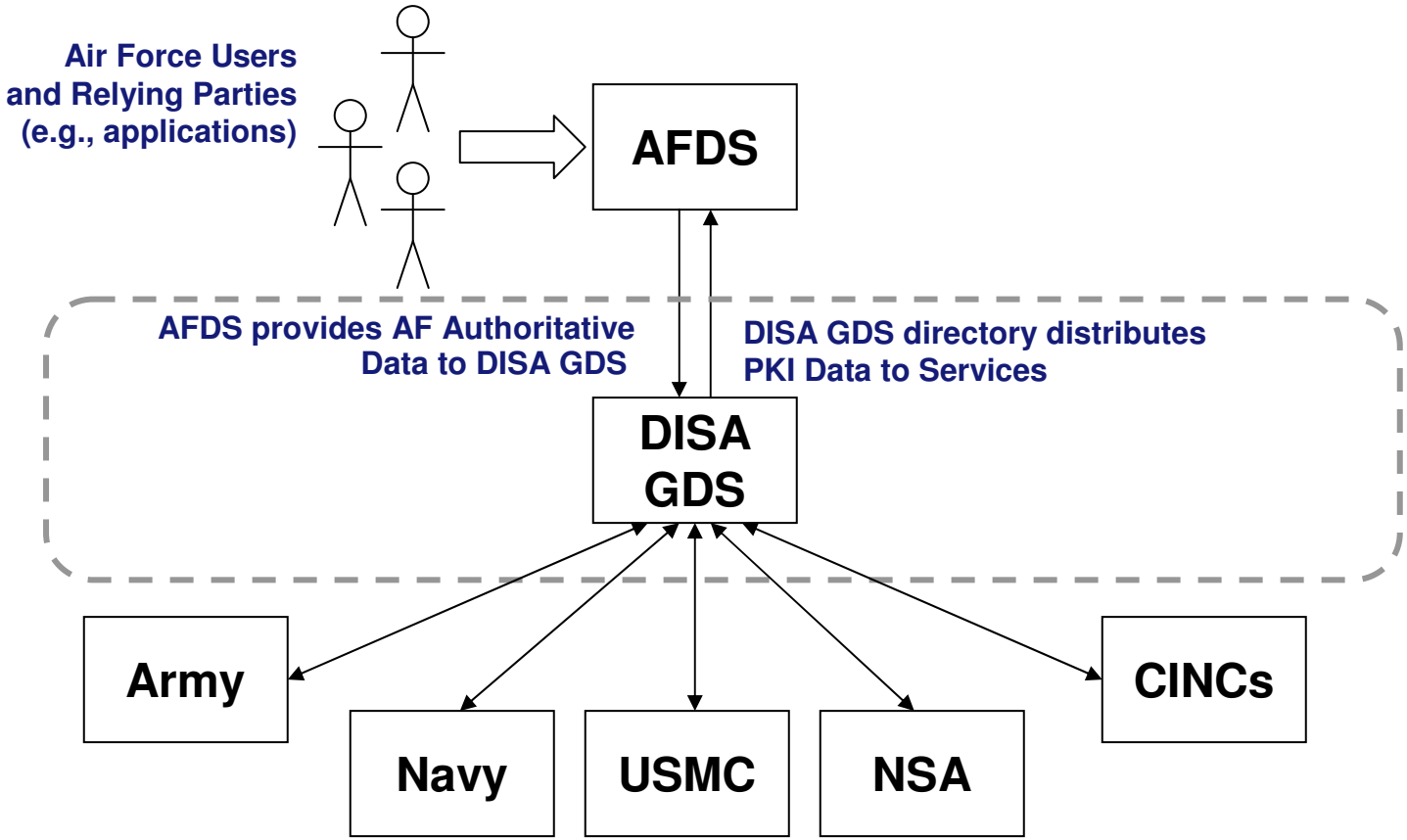
DoD BMO Request

- **Initial task**
  - Requested AF support
  - Examined feasibility of using directory services for distribution architecture
  - Evaluated use of meta-data technology
    - Meta-service
    - LDAP directory
  - Leveraged an AF Directory Services lab facility in Mclean VA
- **Evolving task**
  - Participated in DoD BMO Working Groups
  - Provided update briefing & interim report in Nov 02
  - Briefed biometric working groups from Dec 02 – Jan 03
  - Reported findings to DoD BMO in May 03

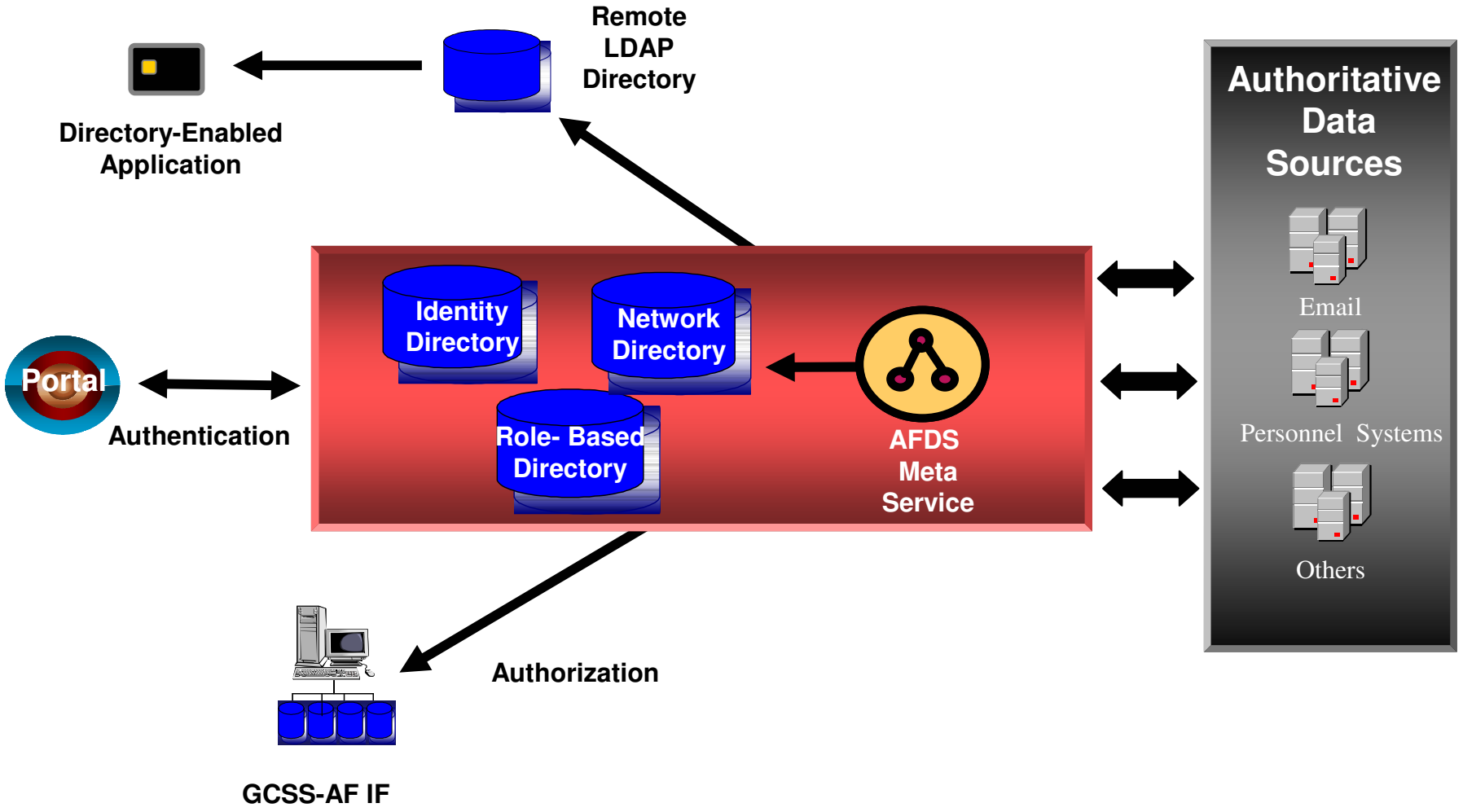
Task Objectives

- ☑ Utilize a distribution architecture to merge biometrics data with other user profile data & credentials
- ☑ Examine use of meta-service/directory technology to efficiently manage user data to store/distribute data
- ☑ Validate the ability to use directory replication as a distribution source for biometric data
- ☑ Baseline scalability and performance
- ☐ Protect biometric templates both at rest and in motion

AF Authoritative Data …hold & exchange information



AF Authoritative Sources …connect and synchronize data



Distribution Architecture

Technology

- Meta-service/directory technology can merge existing user data with biometric data
- Efficient template storage and distribution for use by communities of interest

Not solely a technology solution

- Addresses meta-data issues facing various communities such as central storage, large-scale distributed computing, identity management, and access control
- Brings different communities together for the technical interchange of ideas related to meta-data

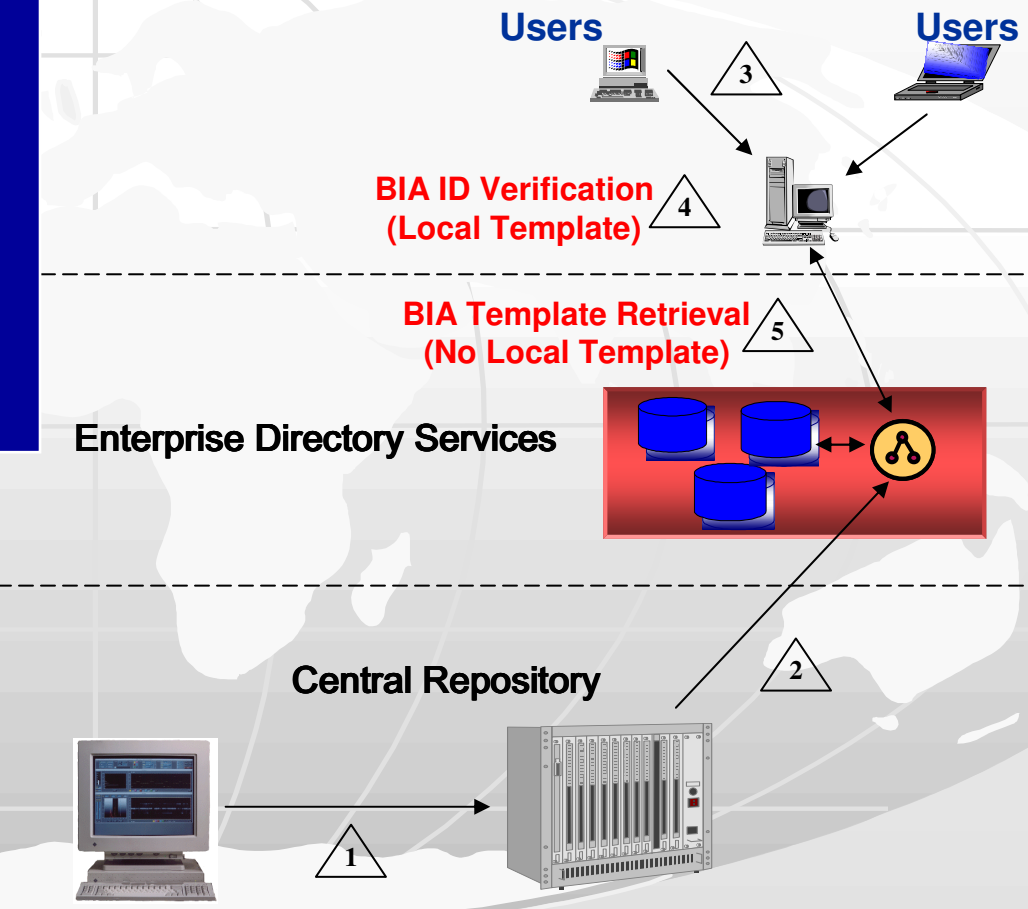
Requirements, Organizations, Processes

Directory Replication Technology

- Hierarchical data structure
- Optimized for search and retrieval (10% writes and 90% reads)
- Designed to supply smaller sets of data to large groups of customers
- Designed to replicate data out from specific nodes
- Security more granular - individual containers have access control lists
- Designed to support authentication services

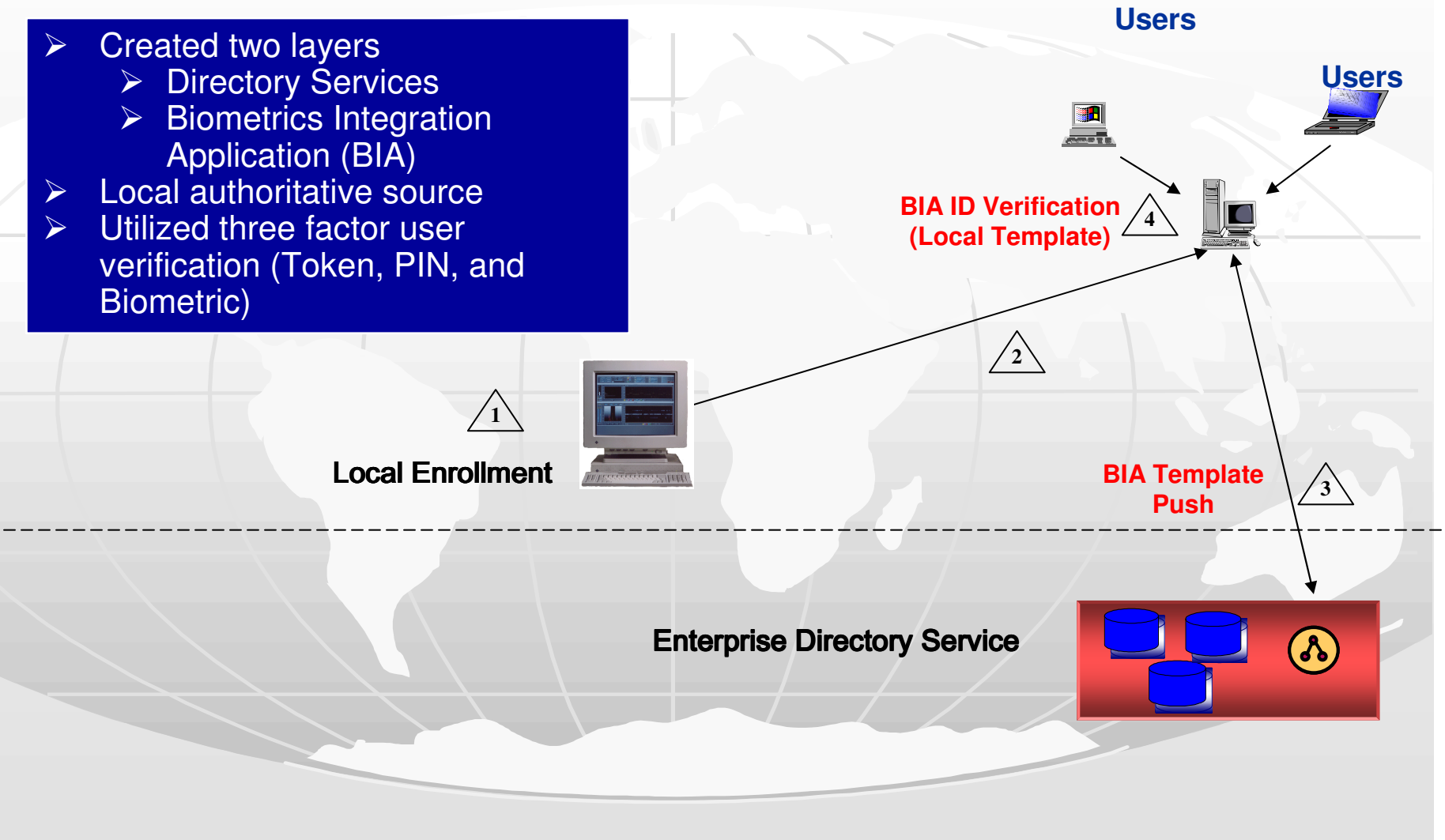
Lab Demonstration: Enterprise "Life-Cycle" Scenario

- Created three layers
  - Central Repository
  - Directory Services
  - Biometrics Integration Application (BIA)
- Master authoritative source
- Utilized three factor user verification (Token, PIN, and Biometric)



Lab Demonstration:
Local "Life-Cycle" Scenario

- Created two layers
  - Directory Services
  - Biometrics Integration Application (BIA)
- Local authoritative source
- Utilized three factor user verification (Token, PIN, and Biometric)



Successes

- Demonstrated pulling biometric data across a distributed architecture in a closed environment
- Merged biometric data into an identity repository
- Demonstrated successful retrieval of biometric templates for application authentication

Challenges

- Availability of COTS biometric applications that are designed to work with LDAP directories
  - Vendor community likely to provide products as DoD BMO establishes an enterprise architecture
- Maturity of biometric open standards
  - DoD needs to establish policy on standards usage

Summary

- Successfully demonstrated merger of biometric templates into an identity directory to store and distribute
- Further investigation areas
  - In-depth comparative analysis - centralized vs. distributed architecture
  - Evaluate biometric data security alternatives – at rest, in motion
  - Develop tech demo that utilizes encryption technologies
- Points of Contact
  - AF Directory Services Lead Command: Kenny Lintner, AFCA/ITLD Kenny.Lintner@scott.af.mil
  - AF Biometrics Lead Command: Ed Thoman, AFCA/WFPL Edward.Thoman@scott.af.mil